Name: _____   Date: _____
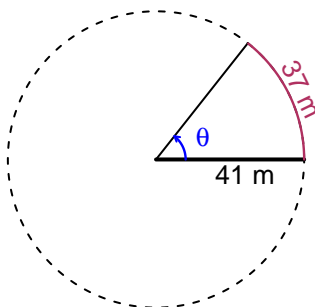
Trig Final (TEST v662)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.
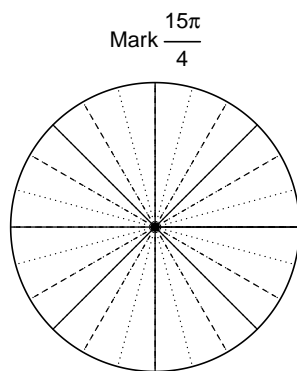
Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 37 meters. The radius is 41 meters. What is the angle measure in radians?
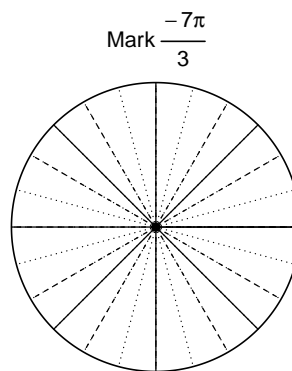

Question 2

Consider angles $\frac{15\pi}{4}$ and $\frac{-7\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{15\pi}{4}\right)$ and $\sin\left(\frac{-7\pi}{3}\right)$ by using a unit circle (provided separately).

Mark $\frac{15\pi}{4}$

Find cos(15π/4)

Mark $\frac{-7\pi}{3}$

Find sin(−7π/3)

Question 3

If $\sin(\theta) = \frac{-60}{61}$, and θ is in quadrant IV, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 5.21 Hz, an amplitude of 8.11 meters, and a midline at $y = 6.97$ meters. At $t = 0$, the mass is at the minimum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).